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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PHAM, THIERRY L

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/706,430

Applicant(s)

RAI ET AL.

Examiner

Thierry L. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/10/04; 9/2/04; 7/22/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- This action is responsive to the following communication: RCE filed on 8/22/05.
- Claims 1-26 are pending, wherein claims 23-26 are newly added.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/22/05 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 16-20, 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owa et al (US 6348971), and in view of Idehara (US 2001/0052995).

Regarding claim 1, Owa discloses in a printshop (printshop with plurality of printers, fig. 1) having resources (plurality of printers, fig. 1) for performing various tasks to process print jobs, a method for optimizing the performance of the printshop, the method comprising the steps of:

- partitioning the printshop into autonomous cells (a printshop as shown in fig. 1 including plurality of printers and each printer accommodate in its own location/cell) capable of receiving and processing print jobs;
- dividing the resources of the printshop between the autonomous cells (each printer of fig. 1 accommodating its own cell), wherein each cell contains sufficient resources (a printer in each

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cell/location has the capacities to complete the print job alone, fig. 1, col. 3, lines 15-067) to complete at least one class of print job; and

- assigning (the host computer assigning the print job with printing attributes to an appropriate printer for completing the print job, figs. 1-2, col. 3-4) each print job to selected one of the autonomous cells wherein the autonomous cell contains resources capable of independently completing the print job (each printer has its own capabilities (i.e. ink and paper) to complete the print job independently, fig. 9).

However, Owa fails to teach and/or suggest a method for creating/partition printshop into virtual autonomous cells, representing physical autonomous cells.

Idehara, in the same field of endeavor for printshop, teaches a method for creating/partition printshop into virtual autonomous cells, representing physical autonomous cells (figs. 9-10, pars. 114-118).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify printshop of Owa to include a method for creating/partitioning a printshop into virtual autonomous cells as taught by Idehara because of a following reason: (●) the utilization efficiency of the printshop facilities as a whole can be increased, resulting in reduced total costs (Idehara, par. 5); (●) virtual layout of cells showing location of resources help prevent data from being output to an apparatus of a wrong place of business (par. 40 and par. 46 of Idehara).

Therefore, it would have been obvious to combine Owa with Idehara to obtain the invention as specified in claim 1.

Regarding claim 2, Owa further discloses the method of claim 1 wherein the resources include equipment (printer, fig. 1) for performing printing tasks and include at least one of printer, copiers, rollers, shrink wrapper, cutters, sealers and manual resources.

Regarding claim 3, Owa further discloses the method of claim 1 wherein the step of assigning print jobs comprises, for each given print job, determining what tasks (fig. 6, cols. 4-6) need to be performed to complete the given print job and assigning (the host computer assigning the print job with printing attributes to an appropriate printer to complete the print job, fig. 1-2,

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col. 3-6) the given print job to one of the virtual autonomous cells that contains sufficient representations of resources for performing the tasks that need to be completed to fully process the given print job.

Regarding claim 4, Owa further discloses the method of claim 3 wherein the step of assigning print jobs comprises, for each given print job, determining (determining which printers have the capacities/resources to complete the print job as requested by users with printing attributes, cols. 3-6) which of the autonomous cells has sufficient available capacity to completely process the given print job.

Regarding claim 5, Idehara further teaches the method of claim 1 wherein at least one of the virtual autonomous cells includes representations of more than one machine for performing a same operation (fig. 12).

Regarding claim 6, Owa further discloses the method of claim 1 further comprising the steps of: (1) determining classes (i.e. priority, cols. 5-6) of print jobs; and (2) assigning each print job to one of the classes (assigning print job with priority, cols. 5-6).

Regarding claim 7, Owa further discloses the method of claim 6 wherein the determination of the class of print jobs is done based on collecting and analyzing the print job data (host computer having a detection and interpretation means for detecting and analyzing print job data and routing the print job data to an appropriate printer based upon analyzed print job data, fig. 2, cols. 5-6 and cols. 8-9) and on tasks required to process the print job.

Regarding claim 8, Owa further discloses the method of claim 6 wherein the step of assigning each print job to a selected one of the cells for processing is based in part on the classes to which the print jobs are assigned (assigning print job with priority, cols. 5-6).

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Regarding claim 9, Owa further discloses the method of claim 1 wherein a selected one of the cells is assigned multiple print jobs for concurrently processing the multiple print jobs (cols. 3-6).

Regarding claim 16, Owa discloses a method of portioning a printshop into autonomous cells, comprising the step of:

- identifying (host computers, fig. 1, cols. 3-4) products produce by the printshop;
- identifying (host computers, fig. 1, cols. 3-4) operation required for producing each of the identified products;
- determining (determines which printer is to complete the print job, fig. 1, cols. 3-6) printshop resources that are required for printing the identified operations;
- partitioning printshop resources into autonomous cell based on the determined number of printshop resources required for operations to produce products based on customer demand for products, wherein each autonomous cell is independently capable of producing at least one of the identified products a printer in each location (cell) has the capacities to complete the print job alone, fig. 1, col. 3, lines 15-67).

However, Owa fails to teach and/or suggest a method for creating/partition printshop into virtual autonomous cells, representing physical autonomous cells.

Idehara, in the same field of endeavor for printshop, teaches a method for creating/partition printshop into virtual autonomous cells, representing physical autonomous cells (figs. 9-10, pars. 114-118).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify printshop of Owa to include a method for creating/partitioning a printshop into virtual autonomous cells as taught by Idehara because of a following reason: (●) the utilization efficiency of the printshop facilities as a whole can be increased, resulting in reduced total costs (Idehara, par. 5); (●) virtual layout of cells showing location of resources help prevent data from being output to an apparatus of a wrong place of business (par. 40 and par. 46 of Idehara).

Therefore, it would have been obvious to combine Owa with Idehara to obtain the invention as specified in claim 16.

Regarding claim 17, Owa further discloses the method of claim 16 wherein throughput of each autonomous cell is determined as a function of the printshop resources allocated to the autonomous cell, and wherein the printshop resources are allocated to each autonomous cell based on customer demand (fig. 1, col. 3, lines 15-67 and col. 8-9).

Regarding claim 18, Owa further discloses the method of claim 16 wherein the step of identifying products comprises identifying classes (fig. 12a) of print jobs produced by the printshop, wherein each class includes a sequence of operation (inherently, before perform printing of print job, there are many task involve, for example, converting a print job into PCL and/or PDL language and CMYK color space) that is performed to process the print jobs of the class that differs from the sequence of operations performed to process each of the other classes.

Regarding claim 19, Idehara further teaches the method of claim 16 wherein customer demand is estimated based on empirical data (fig. 12).

Regarding claim 20, Owa further teaches the method of claim 16 further comprising the step of assigning a print job to a selected one of the autonomous cells for completion by the selected autonomous cell (14).

Regarding claim 22, Owa further teaches the method of claim 20 wherein the assigning step is performed by a computer system (host computer 1, fig. 2).

Regarding claim 23, Idehara further teaches the method of claim 1, further including constructing scheduling algorithms (fig. 12) for the printshop based on the virtual autonomous cells.

Regarding claim 24, Idehara further teaches the method of claim 1, further including altering a physical layout (pars. 117-118) of the printshop in accordance with the virtual autonomous cells.

Regarding claim 25, Idehara further teaches the method of claim 16, further including constructing scheduling algorithms (fig. 12) for the printshop based on the virtual autonomous cells.

Regarding claim 26, Idehara further teaches the method of claim 16, further including altering a physical layout (pars. 117-118) of the printshop in accordance with the virtual autonomous cells.

Claims 10-15, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owa and Idehara as applied to claims 1 and/or 16 above, and further in view of Lobiondo (US 5287194).

Regarding claim 10, the combinations of Owa and Idehara fails to teach and/or suggest dividing the print job into lots and concurrently processing the lots using the resources of the selected virtual autonomous cell.

Lobiondo, in the same field of endeavor for printshop, teaches a method for dividing the print job into lots and concurrently processing (dividing the print job into multiple small jobs and performing parallel printing, abstract and col. 2, lines 16-67) the lots using the resources of the selected virtual autonomous cell.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify printshop of Owa and Idehara to include a method for dividing a print job into multiple lots and concurrently processing (i.e. parallel printing is well known in the art) the lots as taught by Lobiondo because of a following reason: (●) to speed up the completion time by using parallel printing technique (col. 2, lines 60-65 of Lobiondo).

Therefore, it would have been obvious to combine Owa and Idehara with Lobiondo to obtain the invention as specified in claim 10.

Regarding claim 11, Idehara further teaches the method of claim 10 wherein each virtual autonomous cell contains multiple resources (it is known the art that a print job requires multiple resources such as scanners, PC, printers, print media, inks, and etc) for completing a print job.

Regarding claim 12, Idehara further teaches the method of claim 10 wherein the printshop has more than two virtual autonomous cells (fig. 10).

Regarding claim 13, Lobiondo further teaches the method of claim 10 wherein the lots are roughly equal sized (col. 2, lines 16-67, and notes: dividing a print job into equal sized and parallel printing by plurality of printers are well known).

Regarding claim 14, Lobiondo further teaches the method of claim 10 wherein the dividing step is performed automatically by a machine (fig. 4).

Regarding claim 15, Lobiondo further teaches the method of claim 14 wherein the machine is a computer system (fig. 2).

Regarding claim 21, Lobiondo further teaches the step of dividing the print job into smaller sized lots are concurrently processing the smaller sized lots using the resources of the selected autonomous cell (col. 1, lines 16-67).

Response to Arguments

Applicant's arguments with respect to claims 1, 10, and 16 have been considered but are moot in view of the new ground(s) of rejection due to newly added limitations "virtual cells representing physical resources" as cited in independent claims 1, 10, and 16.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 6546364 to Smirnov et al, teaches a workflow including plurality of tasks for completing a print job that can be completed within a printshop.
- JP 11296333 to Spohn et al, teaches an example of parallel printing, wherein a print job is divided into multiple equal small segments and to be performed by plurality of printers.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham



GABRIEL GARCIA
PRIMARY EXAMINER